UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,622	05/03/2001	Chi-Peng Li	21994/202861	7856

48165 7590 07/18/2005

CLAUDE R. NARCISSE, ESQ.
200 PARK AVENUE
NEW YORK, NY 10166

EXAMINER	
NG, CHRISTINE Y	
ART UNIT	**PAPER NUMBER**
2663	

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/848,622	LI ET AL.	
	Examiner	Art Unit	
	Christine Ng	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

2. Claims 1-4, 7-12, 15-17 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,614,799 to Gummalla et al.

Referring to claims 1 and 10, Gummalla et al disclose in Figure 2 a method for resolving data collision in a network (HFC cable system) shared by a plurality of users (cable modems 206, 208, 210, 212). Refer to Column 4, lines 32-49. The method comprises:

Sending (broadcast from CMTS 204) a first back-off window to more than one of the plurality of users of the network.

Calculating (by CMTS 204) a second back-off window based on at least one operational characteristic (number of collisions Nc and number of successes Ns) of the network. Refer to Column 12, lines 35-50; and Column 14, lines 20-25.

Sending (broadcast from CMTS 204) the second back-off window to more than one of the plurality of users of the network. The back-off window parameters (BS and BE) specify the range of contention slots a cable modem will defer before retransmitting its request to the CMTS. The back-off window parameters are updated every 200 milliseconds by the CMTS and broadcasted to cable modems in order to allow "optimal

utilization of contention slots". Refer to Column 10, line 62 to Column 11, line 67; and Column 20, lines 48-67.

Referring to claim 2, Gummalla et al disclose calculating subsequent back-off windows based on at least one operational characteristic of the network and sending the subsequent back-off windows to more than one of the plurality of users of the network. The back-off window parameters are updated every 200 milliseconds by the CMTS and broadcasted to cable modems in order to allow "optimal utilization of contention slots". Refer to Column 20, lines 48-67.

Referring to claim 3, Gummalla et al disclose calculating a second back-off window based on at least one operational characteristic comprises calculating the back-off window based on collision rate (Nc) in the network. The back-off parameters (BS and BE) are adjusted depending on the Nc/Ns ratio, so as to cause the ratio to converge to 0.7, where Nc is the is the number of contention slots in a sampling interval which result in a collision. Refer to Column 12, lines 24-26; and Column 14, lines 20-25.

Referring to claims 4, 12 and 19, Gummalla et al disclose the step of estimating the collision rate based on a status of at least one reservation slot. The collision rate Nc/Ns is based on the number of contention slots (Nc) resulting in a collision and the number of contention slots (Ns) resulting in a success. Contention slots are "reservation slots" since they are used by cable modems to request the CMTS for a data grant in which to sent their actual data in non-contention mode, thereby reserving a minislot to transmit data. Refer to Column 6, lines 41-55; and Column 12, lines 19-26.

Referring to claims 7 and 11, Gummalla et al disclose dynamically calculating subsequent back-off windows to maintain a substantially constant collision rate (Nc/Ns = 0.7) and sending the subsequent back-off windows to more than one of the plurality of users of the network. The back-off window parameters are updated every 200 milliseconds by the CMTS and broadcasted to cable modems, wherein the parameters are adjusted in order to cause the Nc/Ns ratio to equal to approximately 0.7. Refer to Column 14, lines 20-25; and Column 20, lines 48-67.

Referring to claims 8 and 15, Gummalla et al disclose the step of calculating the second back-off window based on at least one operational characteristic comprises calculating the back-off window based on a number of users on the network. The Nc/Ns ratio is based on the numbers of users in the system. If the Nc/Ns ratio is greater than 1, this indicates that there is a disproportionately large number of modems contending for upstream access to the CMTS. If the Nc/Ns ratio is less than 0.25, this indicates that there may be very few active modems on the upstream channel. Refer to Column 17, lines 1-16 and lines 57-65.

Referring to claims 9 and 16, Gummalla et a disclose the step of calculating the second back-off window based on at least one operational characteristic comprises calculating the back-off window to maintain the back-off window approximately equal to a number of users. If the Nc/Ns ratio is greater than 1, this indicates that there is a disproportionately large number of modems contending for upstream access to the CMTS; so each modem increases its corresponding back-off value. If the Nc/Ns ratio is less than 0.25, this indicates that there may be very few active modems on the

upstream channel; so each modem reduces its corresponding back-off value. Refer to Column 17, lines 1-16 and lines 57-65.

Referring to claim 17, Gummalla et al disclose a system for resolving data collisions in a shared network (HFC cable system), comprising:

[Figure 2] A plurality of remote devices (cable modems 206, 208, 210, 212).

[Figure 2] An access point (CMTS 204) in communication with the plurality of remote devices. Refer to Column 4, lines 32-49. The access point further comprises:

[Figure 7] A switch (CMTS PHY/MAC hardware 704) for communicating with the plurality of remote devices. Refer to Column 15, lines 15-20.

[Figure 7] A transceiver (downstream transmitter 714 and upstream channel receiver 706) for sending information to and receiving information from the plurality of remote devices. Refer to Column 15, lines 27-29.

[Figure 7] A collision resolution device (collision detect circuit 708A) that calculates an initial back-off window to be sent to the plurality of remote devices and dynamically adjusts a back-off window to substantially maintain a predetermined constant collision rate (Nc/Ns = 0.7). Refer to Column 14, lines 20-25; and Column 15, line 29 to Column 16, line 3. Refer also to the rejection of claims 1 and 10.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 6, 13, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,614,799 to Gummalla et al in view of U.S. Patent No. 6,215,792 to Abi-Nassif.

Referring to claims 5, 13 and 18, Gummalla et al does not disclose the step of calculating the second back-off window based on at least one operational characteristic comprises calculating the back-off window to maintain a collision rate of approximately 1-2/e.

Abi-Nassif disclose that the probability of garbled outcomes (collision rate) may be very small, such as 0.3 (approximately 1-2/e), which means that the system is operating in the underload region. The underload region is a stable region since the number of ranging opportunities is larger than the optimal number of ranging opportunities, which results in a few collision outcomes. Conversely, when the probability of garbled outcomes is large, such as 0.8, the system is in an overload region. The overload region is an unstable region since the number of ranging opportunities is smaller than the optimal number of ranging opportunities, which results in a lot of collision outcomes. Refer to Column 6, lines 17-37 and Column 8, lines 33-47. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the step of calculating the second back-off window based on at least one operational characteristic comprises calculating the back-off window to maintain a collision rate of approximately 1-2/e; the motivation being so that the system will be in a stable region with few collision outcomes.

Referring to claims 6 and 14, Gummalla et al does not disclose the step of calculating the second back-off window based on at least one operational characteristic comprises calculating the back-off window to maintain a collision rate of approximately between .2 and 4. Refer to the rejection of claims 5, 13 and 18, where the value of 1-2/e (or 0.2642) is approximately between .2 and 4.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (571) 272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng CN
July 11, 2005

RICKY NGO
PRIMARY EXAMINER
7/14/05